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COASTAL WATERS IN JEOPARDY: REVERSING THE DECLINE AND PROTECTING AMERICA'S COASTAL RESOURCES

OVERSIGHT REPORT

OF THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES

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EXECUTIVE SUMMARY

The evidence of the decline in the environmental quality of our estuaries and coastal waters is accumulating steadily. The toll of nearly four centuries of human activity becomes more and more clear as our coastal productivity declines, as habitats disappear, and as our monitoring systems reveal other problems. From the contaminated sediment of New Bedford Harbor to the closed beaches of Long Island, from the declining shellfish harvests of Chesapeake Bay to the rapidly disappearing wetlands of Louisiana, from the heavily polluted waters of San Francisco Bay to the Superfund sites in Puget Sound, the signs of damage and loss are pervasive.

The assault comes from many directions. Despite passage of the Clean Water Act more than a decade and a half ago, large quantities of toxic and conventional pollutants spew from the pipes of industrial facilities and municipal treatment plants along our coasts. Runoff containing pesticides, herbicides, metals, and nutrients flows from our farms and city streets into our estuaries and bays. Numerous urban embayments contain contaminated sediments which poison local fish and shellfish and present risks to public health. Toxic air pollutants, nitrogen, and sulphur from power plants and automobiles are carried by the winds to these waters. Development of seaside condominiums and marinas means wetlands that once absorbed and purified stormwater now contribute oil, toxic metals, and other pollutants to nearby waters.

The pressures on these vital ecosystems are persistent and growing. More than 120 million people will live within 50 miles of the shore by 1990. An even larger population will rely on the coastal zone for food, drinking water, jobs, and recreation by the beginning of the 21st century. The continuing damage to coastal resources from pollution, development, and natural forces raises serious doubts about the ability of our estuaries, bays, and near coastal waters to survive these stresses. If we fail to act and if current trends continue unabated, what is now a serious, widespread collection of problems may coalesce into a national crisis by early in the next century.

The dimensions of coastal pollution as a national problem were thoroughly documented in a report by the Office of Technology Assessment, **Wastes in Marine Environments** (April, 1987). In the 20 months since release of that report, the House Subcommittee on Fisheries and Wildlife Conservation and the Environment and the Subcommittee on Oceanography (the Subcommittees) have held a series of nine oversight hearings on many aspects of the coastal pollution problem that have done much to underscore the conclusions of that report. At two hearings in 1987, the Subcommittees focused on the nature and seriousness of the problems, while the seven hearings in 1988 focused upon various dimensions of the solution. Based on these hearings, the Subcommittees draw several conclusions.

The Need to Act

The first confirms the Subcommittees' basic finding that our coastal waters in many areas are in poor shape and risk further decline unless current trends are reversed. The coastal pollution problem is a national problem, one that arises from the choices that we make about producing and consuming goods, constructing and operating our cities, running our farms, and driving our cars. It is one that arises from the way we use, and often abuse, our coastal waters. Changing these patterns will take time; there will be no quick fixes.

A National Effort

The second conclusion, which derives from the first, is that a proper response to the problem will require a cooperative, national effort. Success will depend very much on the efforts of private landowners, developers, and farmers. Others will have to participate actively in the process to strengthen our resolve and to monitor progress. Many responsibilities will fall to state and local governments. Throughout the entire effort, the dozen or more Federal agencies whose activities affect the coastal zone must contribute their resources and expertise. Finally, the Administration and the Congress must provide national leadership if we are to avoid a fragmented, ineffectual response.

Maintain Basic Programs

Third, we must maintain our basic programs. Fundamental to any national effort to address coastal pollution and to protect coastal resources is the effective operation of the basic programs of the Clean Water Act, the Coastal Zone Management Act, and other statutes. A major premise of this report is that the new efforts to protect coastal areas are not to be undertaken at the expense of the current programs for water quality and environmentally sound development nationwide. Those basic programs, which have resulted in marked improvements in water quality generally, must be maintained.

Emphasize the Coast

In addition, coastal areas should receive greater emphasis within those basic programs. Until very recently, the country's water quality protection programs have largely neglected the needs of the estuaries and other coastal waters and the immense pressures that coastal populations place on those waters and their living resources. Recent developments such as the National Estuary Program and the Near Coastal Waters Initiative in the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration's (NOAA's) Coastal Ocean Program should be strengthened and extended. Many of the recommendations in the report flow from the proposition that water pollution control programs need to focus more sharply on the special needs of coastal and estuarine ecosystems.

Understand Coastal Ecosystems

Moreover, our pollution control efforts should expand their emphasis on coastal ecosystems as single units, an approach advocated by the Office of Technology Assessment in its report that the Subcommittees reiterate. For too long the nation has relied heavily on a plant-by-plant, outfall-by-outfall approach to water pollution. While this approach has brought substantial reductions in the volume of conventional pollutants being discharged from pipes, it has neglected other sources (such as surface runoff) and failed to focus adequately on the overall health of a waterbody and its living

resources. More broadly focused efforts should supplement the traditional discharge-by-discharge, source-by-source approach to pollution control, starting with a strengthened water quality standards program.

Protect Our Fisheries

The Subcommittees believe that greater efforts should focus on the health and productivity of entire coastal ecosystems and their living resources. The work done under the Chesapeake Bay Program and Great Lakes Program provides us with important examples of the direction we must take. Ecosystem health and strong, abundant fish and shellfish populations should be the measures of success, not the more narrowly construed physical or chemical parameters that have driven the regulatory processes for too long. From this point derive several recommendations on modifying standards and monitoring practices to reflect the more broadly based approach.

Improve Compliance

Numerous witnesses testified to the need for better compliance. In developing an agenda for the new Congress and Administration, the Subcommittees believe that substantial efforts should be undertaken to bolster the enforcement arms of Federal and state programs and to provide greater disincentives to noncompliance in the first place. Several recommendations for expanding the consequences of noncompliance, from increased criminal penalties to greatly expanded liability, are included below.

Money

Money remains an enormous problem. The Federal budget crisis worsens, and Federal coffers shrink. State and local communities are increasingly called upon to shoulder the burden, yet without adequate funds. Words alone, however, will not do the job. The Subcommittees therefore strongly recommend that every effort be made to increase available resources, to increase the effectiveness of existing programs, to shift onto private parties those responsibilities that

can properly and fairly be transferred, and to identify new sources of revenues for Federal, state, and local activities.

Reduce Wastes

Finally, the Subcommittees must acknowledge the fundamental necessity to reduce the amount of wastes we as a nation produce. As population pressures along the coasts mount during the remainder of this century, so too will the quantities of wastewater, solid waste, and hazardous waste that coastal Americans produce. One principal recommendation targets the need for Congress and the Administration to examine closely the possibility of imposing fees upon those who dispose of their wastes in our coastal waters to provide direct economic incentives to reduce the volumes and toxicities that are continually loaded upon our coastal waters. A properly designed fee system could also raise badly needed revenues for more effective pollution control efforts at state and local levels, particularly in the control of surface runoff.

PART I - INTRODUCTION

Purpose

In the 100th Congress, the Subcommittee on Fisheries and Wildlife Conservation and the Environment and the Subcommittee on Oceanography have devoted significant time and effort examining the causes of coastal environmental degradation and the loss of coastal resources and habitat. Through the course of nine oversight hearings, the Subcommittees have amassed a comprehensive record covering every major aspect of the coastal pollution problem, from direct discharges of pollutants into coastal waters to surface runoff to atmospheric deposition to sediment leaching. The effort reflects the conviction of the Subcommittees that stemming the degradation of coastal areas represents one of our highest national priorities.

This report culminates those efforts. The Subcommittees regard this report and its recommendations as a mechanism to stimulate further debate on these important issues. The Subcommittees recognize that time and further debate will hone the approaches outlined here; the report is not itself intended to provide the final answers, but to foster greater attention to this subject and generate new solutions to the problems of the coast.

The heart of the report is the recommendations section, which contains many of the suggestions offered to the Subcommittees during their oversight effort. Two points need to be emphasized. First, the record of the nine hearings composes several volumes of factual details, program descriptions, and critical evaluations. No attempt has been made here to reproduce that record, but those who are interested in pursuing further any particular topic are encouraged to consult it. Copies of the printed hearings, listed in Appendix II, are available from the Subcommittees.

Second, the recommendations are intended to convey the basic tenor of the many suggestions offered to the Subcommittees on each major

topic. However, the report itself has not been voted on by the Subcommittees; hence, no individual suggestion contained here can be said to represent formally the position of any Member of the Subcommittees.

Acknowledgments

In undertaking this effort, the Subcommittees have received the helpful, cooperative assistance of several Federal agencies, including the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA). The Subcommittees wish to acknowledge gratefully the countless hours of work devoted to the task by many individuals in these two agencies and in other organizations. Without this very able assistance and guidance, the effort would have lost much of its content and direction. In particular, the Subcommittees wish to extend their thanks to Mr. Tom Laverty, who, while on assignment from EPA, dedicated long hours and devotion to the oversight effort and to this report.

In the course of the hearings, many witnesses referenced the recent amendments to the Federal Water Pollution Control Act that comprised the 1987 Water Quality Act. While the legislative tasks may not be complete, it is clear that major statutory strides were made by those 1987 amendments. The Subcommittees therefore wish to acknowledge the constructive work of those who authored the 1987 Act, including the House Committee on Public Works and Transportation and the Senate Committee on Environment and Public Works. Also deserving recognition are the major strides achieved by the House and Senate Agriculture Committees in the Food Security Act of 1985.

Limitations

The subjects reviewed by the Subcommittees touch on dozens of Federal programs spanning at least six major Federal departments and agencies and an equally complex array of state and local activities. In fashioning this report, the Subcommittees have sought to limit it to manageable proportions, and without question it leaves untouched entire areas that do and will play important roles in the coastal

pollution problem. The Subcommittees regret their inability to broaden the bounds of the report and wish to acknowledge the numerous areas that deserve more detailed examination.

These include ocean dumping, which has received very active consideration by the 100th Congress, culminating in the passage of the Ocean Dumping Ban Act of 1988 (P.L. 100-688). Also left largely untouched is the larger topic of waste management and waste minimization, which underlies many of the pollution-specific aspects of the coastal degradation problem. Recognizing the importance of air deposition to estuarine health, particularly in the area of nutrients, the Subcommittees nonetheless have elected to defer a detailed focus on air pollution and emission controls to the reauthorization of the Clean Air Act. A final subject to which the Subcommittees were unable to give sufficient attention is the international sector, in which are several important initiatives that deserve strengthened U.S. leadership.

Furthermore, many of the programs that affect our coastal future are national programs that encompass both coastal and inland responsibilities. In their oversight hearings, the Subcommittees have focused upon the problems of the coast and the ways in which existing programs might be modified to improve their performance in coastal settings. This report and its recommendations carry a similar focus. The Subcommittees wish to acknowledge that focus and defer to the appropriate Committees and Subcommittees the question of whether the issues addressed in this report apply to inland settings as well.

Sources

The principal source of information used by the Subcommittees in this report is the record compiled by the nine hearings conducted by the Subcommittees in the 100th Congress. Additional information and data have also been provided to the Subcommittees by EPA's Office of Water and by NOAA's National Ocean Service.

PART II - PROBLEM

All over America, development is moving to the sea. At the same time, on every coastline, the sea is moving in to meet it. In between, the coast is rotten with conventional pollution. No one knows how bad the heavy metals are. Throughout the remaining estuaries we maintain an unimaginably large network of highways, causeways, pipelines, and canals. Each one destroys. Each one is a trade-off -- as is the trade-off for the golf course, and the one for a sewage outfall. The best we have been able to do under current Federal and state programs is to make trades and buy time. Over time, however, we will lose. It is the principle of cut flowers. With enough fresh water, they take longer to die.

--Houck, Ending the War: A Strategy to Save America's Coastal Zone, 47 Maryland L. REV. 360 (1987)

[T]he Nation's past commitment of resources has been insufficient to accomplish all the essential activities . . . Moreover, even if total compliance [with the Clean Water Act] is achieved, existing programs will not be sufficient . . . In the absence of additional measures to protect our marine waters, the next few decades will witness new or continued degradation in many estuaries and coastal waters around the country.

--OTA, Wastes in Marine Environments, pg. 7.

Population

Today over half the world's population lives within 125 miles of a coastline . . . In 1848, the year before gold was discovered at Sutter's Fort, there were 600 people living in San Francisco. Today we've got about 5.5 million living around our Bay.

--Michael J. Herz
Oceanic Society Trustee
November 18, 1987

At the heart of the coastal pollution problem is simple demographics. People crowded onto the water's edge are both the cause of the decline in coastal environmental quality and one of the major reasons why solving the problem is so critical, because the health and quality of life for so many depends on it.

Over half of the nation's people live and work within coastal counties which encompass less than 10 percent of the U.S. land mass. About 40 percent of American industry and almost half of Canadian industry is located in the drainage basin of the Great Lakes alone. The population density of coastal counties is 5 times greater than non-coastal counties nationwide, and coastal counties of the Atlantic coast are 10 times more densely populated than inland counties.

Growing populations along coastal corridors mean more residential, commercial, and industrial development; more roads and infrastructure; and an increase in every type of environmental assault on the land, air, and water of the coastal zone.

Our challenge, the challenge for the nation, is to guide that growth so as to husband properly the invaluable resources and rich productivity of the coastal and estuarine areas for ourselves and those who follow us.

Toxics and Nutrients

Toxicants entering the [Puget] Sound and accumulating in the bottom sediments pose the greatest long-term threat to its future, because of both the extent and persistence of toxic contamination.

--Katherine Fletcher, Chair
Puget Sound Water Quality Authority
November 18, 1987

The problem of toxics was cited by witnesses from the northwest, the Great Lakes and the northeast as their highest priority. Toxics enter coastal waters through direct industrial discharges and through the discharges of industries into municipal sewer systems which are not designed to control toxics. Consequently, these toxic contaminants "pass through" the treatment process and into coastal waters largely uncontrolled. Another important source is contaminated runoff from streets, parking lots, and other developed areas, which wash cadmium, lead, and other poisons directly into receiving waters.

The toxic problem is particularly pernicious for three reasons. First, the enormous and rapidly changing number of individual contaminants overwhelms the ability of regulatory agencies to anticipate and respond. Second, the extreme toxicity of certain contaminants -- such as PCBs -- poses unacceptable risks at extremely low concentrations which evade conventional control techniques. Third, many of these contaminants remain lethal for long periods of time after they are released into the environment, as evidenced by the condition of urban embayments around the country.

Many estuarine and near-shore ecosystems are also suffocating. Too many nutrients and other pollutants end up in these waters, and their decomposition consumes available oxygen. Without sufficient oxygen, shellfish, and fisheries are stymied, and the rich productivity of the coastal waters plummets.

This eutrophication is due in part to the excessive nutrients contributed by municipal sewage treatment plants, agricultural and

urban runoff, and other sources. In 1984, there were 2,200 municipal sewage plants operating in the 325 coastal counties of the contiguous zone of the United States, discharging about 37 percent of the total volume of wastewater for all municipal sewage plants nationwide and almost 50 percent of oxygen demanding materials. About 80 percent of the municipal wastewater generated in coastal counties is discharged directly into estuaries or their tributaries; the remaining 20 percent is released directly to coastal waters through ocean outfalls.

Tens of thousands of stormwater outfalls in urban areas discharge runoff contaminated by solids, oil, synthetic organic compounds, and heavy metals. The problem of storm runoff is compounded when sewer systems are combined with stormwater systems. Excess rains can cause the volume of wastewater picked up by these combined systems to exceed the capacity of their treatment plants, triggering bypass of the treatment plants altogether and the direct discharge of raw sewage and stormwater into the receiving waters.

More difficult to address is the nutrient and contaminant runoff from the thousands of square miles of agricultural croplands surrounding the nation's estuaries, and the runoff from upstream sources carried downstream into the estuaries by the major rivers, so aptly demonstrated by the Mississippi River and the nutrient loadings off coastal Louisiana.[1]

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[1] In a 1985 NOAA nationwide survey, 72 of 200 estuaries and coastal waterbodies experienced low levels of dissolved oxygen (less than 4 milligrams/liter). Of these, 12 show chronically low levels including the Middle Atlantic Bight near the former New York 12-mile sewage sludge dumpsite, the New Jersey/Delaware shelf, and the Louisiana inner continental shelf.

Impaired Productivity

Massive closings of our shellfish beds is as newsworthy as "dog bites man" on Cape Cod.

--Sherrill B. Smith, Jr.
Fisherman
September 26, 1988

The original Fanny Farmer Cookbook recommended Providence River oysters as some of the finest available in the world. Seventy years after the publishing of that cookbook, there are no oysters left in Narragansett Bay; they are all dead, and that Providence River from whence those oysters came is so dirty that it's not even safe for swimming.

--Trudy Coxe
Executive Director
Save the Bay
Narragansett, Rhode Island
November 18, 1987

The prevalence of contaminants in our coastal waters is rendering the unacceptable commonplace. Coastal pollution affects not just aesthetics or public health, but threatens also the productivity of our coastal and estuarine waters. As we pollute our coastal waters and destroy coastal habitat, we undercut the foundation for our commercial and recreational fisheries. Elevated levels of bacteria and toxics close shellfish beds around the nation's coasts and impair the general biological productivity of the rich estuarine areas. Of the 13.7 million acres of classified shellfish waters in the contiguous U.S., only 66 percent (about nine million acres) were approved by state or local authorities for the harvesting of shellfish (oysters, clams, and mussels) in 1985. Nationwide, the waters approved for harvest have increased in only seven of the twenty-two coastal states and declined in twelve since 1966.

For example, in the Gulf of Mexico, over 800,000 acres have been reclassified since 1971; of these, over 90 percent have been placed partially or entirely off limits to shellfishing. Fifty-three percent of the 3.4 million acres of harvest-limited waters in the Gulf are affected by a combination of point and nonpoint pollution sources.

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More than 70 percent of the commercially important species of fish and shellfish depend on near coastal waters as habitat. Each year commercial and recreational catch of species dependent on these areas contributes over $30 billion to the U.S. economy. Landings for estuarine-dependent species such as striped bass, American oyster, shad, and soft-shell clams have declined significantly between 1965 and 1985, which may be attributable in whole or part to declines in water quality and habitat. Research has shown that reproductive success of some marine fish species -- white croaker, kelp bass, and English sole -- may be diminished by contamination and habitat loss.

Tourism and Coastal Recreation

> **Nobody knows exactly the scope of the economic consequences of the "Summer of '88." But we do know that they have been enormous. Beach attendance and related activities plummeted. Consumption of fish and shellfish dropped off precipitously as a panicked public reacted to the grizzly events unfolding before them. The $6-billion-a-year tourism economy on Long Island is still reeling. It is estimated that the loss of visitors to Long Island alone has cost the regional economy a minimum of $50 million.**
>
> **--Patrick Halpin**
> **Suffolk County**
> **Executive**
> **September 6, 1988**

Pollution and badly planned development can close beaches because of poor water quality, restrict fishing and shellfishing due to bacterial contamination, contaminate fish tissue with toxics, kill off the fish and shellfish altogether, and block access to shorelines and other areas for recreational purposes. Each can compromise the lure of coastal communities for the millions who visit yearly and undercut the economies upon which these communities depend.

The events of the past two summers along the mid-Atlantic coast demonstrate starkly the enormous stakes involved. The acute pollution incidents involving garbage slicks and the washing ashore of medical debris demonstrated their power to choke off the economic lifelines of coastal communities that depend heavily on tourism. Newspaper reports and testimony by local officials cited widespread economic effects of

the beach closings and other pollution incidents that plagued the New York - New Jersey shores. Attendance at state parks on Long Island dropped fifty percent since the debris first washed ashore, costing local coffers over $350,000 in lost revenues. One New Jersey community reported that beach attendance was averaging 120 people a day, off the previous year's average of 1,200 daily. Lodgings and reservations dropped sharply, and retail sales were reported to plummet. In short, clean water and clean beaches and shorelines are not only environmental imperatives, but economic necessities. While some argue that we cannot afford to do more, the last two summers have demonstrated the folly of that approach: we cannot afford not to do more.

PART III - RECOMMENDATIONS

Introduction

Due to the size of the problem, the diversity of its sources, and the variety of activities that affect the health of the coastal zone, our response to the growing coastal pollution threat must be made by all levels of government and by all sectors of coastal America. What follows is a listing of some of the many different actions that we as a nation might undertake to revitalize our coastal areas. Most focus on the Federal role, some dwell on state responsibilities, and others touch on the all important local roles in shaping our coastal future. They will require legislative, regulatory, and management changes at the Federal level, and a broad array of state, local, and private actions as well. As noted in the Introduction, they are offered here to stimulate further debate on these important subjects, and they will undoubtedly be refined and improved as the debate continues.

Executive Order

> [A] forceful, coherent national environmental ethic needs to be articulated throughout this country if effective action is to be taken. While we must address marine dumping issues, and we are, our priority attention needs to be directed landward towards the sources of pollution and degradation of coastal waters. Industries and farms, our homes and our roads -- in other words, ourselves.
>
> --Rebecca Hanmer
> Acting Assistant
> Administrator for Water
> U.S. EPA
> September 28, 1988

One of the major premises the Subcommittees bring to this effort is the necessity of all Federal agencies to contribute their expertise and capabilities to help arrest the coastal pollution problem. Starting at the top, one important step is for the President to issue an Executive Order that would require systematic review by Federal

departments of their activities that may affect coastal pollution or coastal resources. Each department or agency would make recommendations on improvements that could be made in either area, including needed legislative and regulatory changes. The order would require departments and agencies to minimize coastal pollution and adverse impacts on coastal resources, and should detail enforcement and oversight mechanisms to ensure compliance, including periodic reporting to Congress.

Higher Budgetary Priority For Coastal Protection

Right now, the Federal monies are peanuts.

--Oliver Houck
Professor of Law
Tulane University
September 28, 1988

There are two ramifications of these [funding] omissions. One is that states can't adequately staff and fund their programs, but second, and perhaps more importantly, what is the message that's being sent to the states? If Congress provides strong mandates in the law but does not appropriate adequate money, the states are not getting the message that Congress is serious about the problem."

--Rebecca Hanmer, Acting
Asst. Administrator for Water
U.S. EPA
September 28, 1988

The most pressing problem facing the national effort to halt coastal degradation is also its most intractable one: it is, in a word, money. The Federal government is in financial straits which worsen, and state governments are increasingly strapped themselves. Nevertheless, the Subcommittees strongly encourage Congress and the next Administration to devote more funds to the coastal pollution effort. Coupled with this must be a concerted effort by Congress, the Administration, and state and local entities to develop other innovative funding mechanisms, for direct Federal appropriations by themselves are not up to the task. Both courses must be pursued if we

are to succeed.

Budgetary patterns for marine and coastal programs during the last decade offer a sobering perspective. It is important to understand, as a preliminary point, that Federal funding for marine and coastal programs is important at two levels. Firstly, it directly supports Federal programs for marine and coastal research, monitoring, and regulation. Secondly, it supports state coastal zone management and water quality programs. The level of support in both areas, with one important exception, is declining. That trend must be reversed.

The figures compiled by the National Ocean Pollution Planning Board indicate a steady and substantial decline in overall expenditures for marine research and monitoring from more than $150 million in 1981 to just over $110 million in 1988.

For the two leading marine and coastal pollution agencies, NOAA and EPA, the funding levels have headed in opposite directions. The funding for NOAA dropped from 1984 to 1988 by six percent, a decrease in 1984 dollars of 18 percent. Funding for EPA's marine-specific activities has fared better, increasing from $11.8 million in 1984 to $43.1 in 1989. Two factors have contributed; one was the creation of EPA's Office of Marine and Estuarine Protection, and the second was the codification of several new programs in the Water Quality Act of 1987.

Important components of both the Clean Water Act and the Coastal Zone Management Act are Federal grants to states for the development and operation of their water quality and coastal zone management programs. For the water quality programs, funds come principally from the set asides in the construction grants program under Title II of the Clean Water Act (CWA) and from state program administration grants. The total appropriation for both in 1988 was more than $110 million, but that amount will be cut by more than half over the next several years as the set-asides from the construction grants program are eliminated. This sharp decrease will be occurring at a time when the state water quality programs are assuming new responsibilities because of the Water Quality Act of 1987. EPA estimates that the

states will need more than $250 million by 1995 to carry out these new responsibilities; the combination of declining Federal support and increasing responsibilities is projected to produce annual funding gaps in the mid-1990s of more than $300 million.[2]

Federal support for the state coastal zone programs has been the subject of considerable dispute throughout the 1980s. Although actual appropriations have remained roughly level over this period, the effective levels have been sharply reduced through inflation and the addition of several new state programs, thereby increasing the number of claimants for the same amount of money.

One proposal the Subcommittees encourage is for Congress and the Administration to examine closely the development of a fee system for those who dispose of their wastes into coastal waters. Such a system should supplement existing regulatory controls and could achieve two important additional objectives not now adequately addressed. First, it could create powerful economic incentives for reducing either the volume or toxicity of the wastes loading up our coastal waters, incentives that would operate even if existing regulatory requirements were being satisfied. Secondly, it could raise funds for badly needed new initiatives, particularly at state and local levels, such as controls for surface runoff.

The Subcommittees recognize the very significant complexities associated with efforts to develop an effective and fair fee system and thus counsel caution in approaching the subject. Many variations and alternatives should be examined. But the twin imperatives of increasing funds for pollution control and decreasing wastes justify the effort.

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2 Paying for Cleaner Water: The State Funding Study, U.S. Environmental Protection Agency, Office of Water WH-546, Washington, D.C. 20460 (1988)

Strengthening EPA And NOAA Commitments

There's a tremendous opportunity for things not to happen.

--William Whittington
Acting Deputy Assistant
Administrator for Water
U.S. EPA
July 13, 1988

Without strong, unequivocal leadership from the senior management of key Federal agencies, the coastal initiative will languish. EPA needs to strengthen demonstrably its efforts to protect coastal ecosystems from land-based sources of pollution. In forwarding this recommendation, the Subcommittees applaud the first steps already taken by the current EPA Administrator, Lee Thomas, who early on recognized the need to strengthen the Agency's performance.[3] The National Estuary Program and the Near Coastal Waters Initiative represent useful beginnings, but they are not nearly enough.[4] The Agency must make a clear commitment to this effort, from the Administrator on down, and spanning several programs. The commitment must find expression in clear policy that recognizes the enormous

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[3] The Administrator of EPA has recently issued in draft a National Coastal and Marine Policy that further reflects his efforts. The incoming Administration should strengthen and promulgate the policy in final form.

[4] The Near Coastal Waters (NCW) Initiative was a strategic planning initiative begun by EPA's Office of Water at the request of EPA Administrator Lee Thomas in late 1985. The purpose of the Initiative was to develop and to implement a long-term strategic plan for improved management of the environmental quality of the near coastal waters. EPA examined existing regulatory authorities, marine research efforts, information management, and innovative control techniques to determine the potential for improvement of coastal water quality.

A part of the NCW initiative is EPA's National Estuary Program (NEP) which focuses on specific estuaries around the country. At present there are twelve estuaries under the program. For each estuary EPA establishes a "management conference", represented on which are federal, state, local governments and members of the public. The conferences are intended to develop by consensus a set of conservation goals for the estuary and to identify the methods by which these goals may be implemented.

value of coastal ecosystems, in increased resources for the programs which implement that policy, and in a vigorous coastal enforcement effort to supplement program implementation and management.

While the Near Coastal Waters Initiative initially held out the promise of such an approach, it has lagged, housed in one small office within the Office of Water without the clout to steer new directions for the other, historically more entrenched and powerful programs within the Agency that must be committed to the Initiative if it is to progress. It should be resuscitated and strengthened.

NOAA also needs to increase visibly its efforts on behalf of coastal ecosystems and living marine resources. NOAA's recently announced Coastal Ocean Program[5] represents a small step in the right direction, but it marks only part of what NOAA can and should do. Clearly the scientific work outlined in the program is essential to sound decision-making about coastal problems, but equally important is a commitment to sound management of coastal resources. In this regard, NOAA needs to make a comparable commitment to its resource management responsibilities, especially to its Coastal Zone Management and habitat protection programs. It has a knowledgeable core of program experts, but requires clear leadership as well. As is the case with EPA, an effective NOAA effort will require an unambiguous statement about the importance of Federal support for these programs and a commitment of sufficient resources.

Following from this general recommendation are two additional points. First, EPA and the coastal states need to restructure their operational priorities so that the national permitting system governing discharges (the National Pollution Discharge Elimination System, or NPDES) and the pretreatment programs give greater priority to control of coastal water discharges. The principal device for

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[5] NOAA's Coastal Ocean Program is an effort to develop an integrated scientific approach that draws on the various capabilities within NOAA to offer multidisciplinary technical and scientific data on coastal problems. The program's focus is on the use of NOAA's scientific and data gathering capabilities, rather than on the use of its management authorities.

doing so is the major/minor classification scheme, which identifies those industrial and municipal dischargers that receive the greatest attention from EPA and the states with responsibility for the NPDES program. EPA and the states now focus their primary attention on the reissuance of permits to these major dischargers, thereby ensuring that their permits reflect the most current requirements. Major dischargers are also more likely to be inspected and audited. EPA is currently revising its classification scheme and should give greater weight to coastal discharges.

Second, another technique for further protecting coastal and ocean waters is section 403 of the CWA which calls on EPA to impose on discharges into ocean waters a special set of ocean discharge criteria over and above those criteria that would otherwise apply under the NPDES system. Section 403 was intended by Congress to provide an extra measure of protection for our nation's ocean waters, but its implementation has been extremely limited by a lack of EPA commitment and resources. It could provide an important additional tool and should be taken up and expanded geographically.

Strengthening Water Quality Standards

> The centerpiece for all these programs is the state water quality standards program . . . Water quality standards can and should be the mechanism that pulls all the other pieces together.
>
> --Rebecca Hanmer,
> Acting Assistant
> Administrator for Water
> U.S. EPA
> September 28, 1988

The water quality standards program serves as the regulatory backbone for increasing the ability of state and Federal water pollution control efforts to do what they should do -- protect coastal water quality and healthy coastal ecosystems. It is the water quality program that is designed to put into place the standards that will achieve the basic objective of clean water and healthy and productive ecosystems. While EPA must complete its work on developing technology-based guidelines for the numerous industries which are not

now covered by national guidelines, it must also expand its efforts to revitalize the water quality standards program by ensuring that its technical recommendations (water quality "criteria") cover the necessary pollutants and do the job they should be designed to do.[6] We must also ensure that states, to whom falls the primary responsibility for promulgating the actual water quality standards, improve their performance substantially. Poor state performance should trigger significant sanctions.

a. Strengthened Standards

EPA should revise and supplement existing criteria to increase the protection of marine and estuarine areas. Historically, EPA's emphasis has been on developing criteria designed for freshwater rivers and streams, which may not reflect the environmental conditions that prevail in coastal settings or the ecological sensitivities of marine and estuarine organisms. EPA should therefore expand its inventory of marine water quality criteria.

Moreover, EPA, with technical assistance from NOAA and the U.S. Fish and Wildlife Service, should supplement its existing water quality criteria, which have traditionally focused on narrow physical and chemical parameters, with criteria that focus more directly on the ultimate objective of the Clean Water Act: healthy, productive ecosystems. As one witness stated, we need standards that keep pollutants below levels that affect reproduction, survival, and production of fish -- standards that will protect these resources and the food chain which supports them.[7]

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[6] The Clean Water Act establishes two complementary systems of standards for controlling water pollution. The first, called "technology-based standards," focuses on the technical ability of different types of industries to reduce the amount of pollution in their discharges. The second system of standards, called "water quality standards," is intended to establish limits on the amount of particular pollutants that can be put into our rivers, lakes and coastal waters while still enabling them to achieve certain designated uses. Both approaches are focused upon in great detail in the hearings before the Subcommittees on March 24, and May 25, 1988.

[7] See testimony of Michael Herz, Oceanic Society Trustee, before the Subcommittees on November 18, 1987, at page 43.

Coupled with this is the need to develop sediment criteria, reflecting the estuarine role as a "sink" for pollutants that are discharged from upstream sources. EPA, with scientific support from NOAA, needs to accelerate its work on the development of sediment criteria and ensure that they protect the ecosystems and fisheries they are intended to protect.

If, however, we are to control toxic discharges, the work on developing (and implementing) standards for individual toxic pollutants must be complemented by an increased focus on the overall toxicity of discharges ("whole effluent toxicity testing"). This may be accomplished by assessing the overall impact of these discharges on selected organisms, rather than focusing exclusively on the effects of individual pollutants. EPA and the states should, in turn, expand their efforts to reduce the overall toxicity of discharges where necessary to protect coastal ecosystems by imposing additional controls on discharges. As with the water quality standards program generally, these additional controls would complement the traditional pollutant-specific approach to control of wastewater discharges.

b. State Programs

State water quality programs must improve on several fronts. Most states have lagged far behind in their efforts to issue the full range of state water quality standards that are needed to cover the pollutants that pose toxicity problems for their estuaries and coastal waters. OTA reported that while state performance in addressing the conventional pollutants (fecal coliform, oil and grease, dissolved oxygen, pH, suspended solids, and temperature) has been adequate, the record on toxics is far less encouraging, with over half the states having no standards whatsoever for the priority toxic pollutants.[8]

Moreover, many of the standards for toxics employ vague "narrative" limits which state simply that no toxics should be

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8 The Water Quality Act of 1987 strengthened substantially the requirements for states to develop the necessary water quality standards for these priority pollutants. Full and effective implementation of these requirements remains the key to success.

discharged "in toxic amounts," without specifying what those amounts might be. Given the enormous complexity of determining toxicity levels generally, and compounded by the need to address cumulative impacts, the narrative standards approach imposes impossible demands upon local permit writers, results in significant inconsistencies, and amounts in many cases to little more than wishful thinking. As one witness pointed out;

> All [the Great Lake states] have are narrative standards that say no toxics shall be present in toxic amounts. And U.S. EPA approved those standards by the Great Lakes states as being adequate under the law to achieve "fishable, swimmable waters." Yet, we have fish that state and Federal agencies warn sport anglers you can't eat safely. It does seem somewhat ironic to many sport anglers that . . . on the one hand you have state and Federal agencies saying we have adequate standards to protect fishable, swimmable waters, and on the other hand, to have state and Federal agencies tell them that those fish are not safe to eat.[9]

Not only are the lack of state standards for toxics a problem, but the lack of standards developed for marine and estuarine settings -- as opposed to freshwater systems -- also undercuts the water quality standards program in coastal areas. The permit limits on particular pollutants will only be as effective as the standards from which they derive; if those standards are weak (or don't exist), so too will be the actual restrictions imposed on discharges. As EPA itself pointed out in the May, 1988 hearing,[10] the complexities of developing and implementing criteria for coastal and estuarine settings is much more difficult because the hydrology of those systems is usually far more complex. Hence, the marine side of the equation has lagged historically in favor of the freshwater side. More work needs to be done if the water quality program is to come of age in the coastal regions.

Not only must the standards be established, they must be implemented and enforced through improved monitoring of estuarine and

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9 See testimony of Mark Van Putten, National Wildlife Federation before the Subcommittees on May 20, 1987, at page 31.

10 See testimony of Martha Prothro, Director, Office of Water Regulations and Standards, EPA, before the Subcommittees on May 25, 1988 at page 163.

coastal waters to ensure that they are not exceeded, through much stronger links between achieving water quality standards and controlling runoff, and through more frequent reviews of discharge permits to upgrade their limitations. Permits written in 1978 may well employ standards a decade out of date; hence the need for greater efforts to revisit these older permits and reduce permit "backlogs".

Finally, Congress might substantially strengthen the water quality standard program by making the consequences of poor performances more severe. Several witnesses suggested that Congress authorize (or require) EPA to suspend Federal assistance for those states that fail to implement or enforce water quality standards adequately, akin to the sanctions under the Federal Clean Air Act for nonattainment areas.

Basin-Wide Approaches

> **We should keep in mind that the major questions of health of our marine and near coastal waters are best answered through the systems approach. Excellent examples of these include the Chesapeake Bay Program . . . and the Buzzards Bay and Narragansett Bay Programs with which we work in Massachusetts . . . These programs assess pollution and its impacts from the broad systems approach and provide a forum to develop coordination of remedial actions. They have allowed us to link, however tenuously, EPA and NOAA programs within a given geographical area, to coordinate local, state and federal efforts to minimize duplication and maximize investments, to link scientists with decision-makers, and to find out just what the citizens/taxpayers want in their coastal waters - and, often quite emphatically, what they don't want.**
>
> **--William Eichbaum**
> **Massachusetts Executive Office of Environmental Affairs**
> **March 24, 1988**

Complementing the increased importance of the water quality standards program is the need to focus more heavily on drainage basin approaches in the estuarine and coastal settings. Rivers and streams flush pollutants and sediments from upstream areas into our coastal and estuarine waters. At times, the amount of pollution from these sources far exceeds the amounts discharged directly into coastal waters themselves; yet if we focus only on direct discharges and

ignore riverine inputs, we will miss the mark widely.

Congress and EPA have taken the initial steps through the creation of the National Estuary Program, which seeks to bring to bear a basin-wide approach to controlling estuarine pollution. Section 320 of the Clean Water Act establishes the National Estuary Program (NEP). With a current authorization of $12 million per year, these funds will be fully used by the estuaries currently designated under the program, leaving no money for other important estuaries. More funds are needed to expand the effort.

Money is not the only problem with the program. The implementation framework called for in section 320 is weak and ought to be strengthened. As one witness testified:

> The estuary program, whatever its good intentions, looks like a throwback to the pre-Clean Water Act days: rounds of conferences to encourage the parties to clean themselves up. These conferences may encourage those states that have good intentions to gum away the problem. The teeth, however, are lacking.[11]

Congress could strengthen the program by appropriating money for implementing the approved cleanup plans and monitoring programs, or it could provide that adoption and implementation of the approved plans carry with it certain other rewards or, conversely, sanctions.

Closer ties need to be established between section 320 and state coastal zone management programs and between EPA and NOAA, notwithstanding the agreement reached between the two agencies earlier this fall.[12] The well-established state CZM programs provide a ready framework for implementing components of a suitable cleanup plan developed under section 320; moreover, the experience of state CZM planners may prove invaluable as the planning exercises under section

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[11] See testimony of Oliver A. Houck, Professor of Law, Tulane University before the Subcommittees on September 28, 1988.

[12] EPA and NOAA concluded a "coordination paper" in September, 1988 which was intended to develop closer ties between the coastal zone management program and the estuaries program. It is as yet too early to judge the success of the agreement, although it certainly represents a badly-needed first step.

320 work beyond the technical phases and come to grips with the difficult, but wholly unavoidable, decisions about nonpoint source pollution, land use practices, source reductions, and the like. Moreover, the lessons of the "208" planning process under the Clean Water Act should be brought to bear early in each exercise to avoid the costly repetition of that process; many of the detailed 208 watershed plans were largely ignored.[13]

Outside of the NEP, another approach that merits support is greater use of basin-wide permitting. A combination of permit scheduling, the development of comprehensive wasteload allocations, and close links to the nonpoint source management programs would foster the ecosystem-watershed approach discussed above and would allow environmental managers to make more systematic judgements about ecosystem health.

Coastal Management and Land-Use

> **The strength and heart of CZMA is that it encourages states to take a long-term view of their coastal zones and coastal resources. It has encouraged states to consider the long-term effects of continued development on fragile resources. It has encouraged states to make decisions about which areas are suitable for development and which are not.**
>
> **--James Ross, Director**
> **Oregon Department of Land**
> **Conservation and Development**
> **September 28, 1988**

> **Similarly, you've designed a Coastal Zone Management Act that can't carry any weight at all. [A]ny act that starts by commanding an agency to "protect and develop," has within it the seeds of its own schizophrenia.**
>
> **--Oliver Houck**
> **September 28, 1988**

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[13] Section 208 of the CWA created the area-wide waste treatment program. Congress intended these area-wide plans to address point- and nonpoint source pollution within areas delineated by a state or group of communities. Plans were produced through the 1970s, but no funds were made available after 1980.

One significant program that has not lived up to its potential is the national coastal zone management program. Beset at the national level with disagreements over the continuing need for Federal funding and disputes over CZM consistency requirements, efforts to ensure the working success of the program at the state and local levels have been sidetracked.

As highlighted above, NOAA must renew its commitment to a strong coastal management program and redirect its priorities towards heightened conservation objectives. While NOAA retains the skeleton of a national program and valuable expertise within the ranks of dedicated staff, the decision of NOAA senior leadership to downplay its management responsibilities on the grounds that these issues are exclusively state and local concerns runs counter to the recommendations of virtually every witness appearing before the Subcommittees on the subject. That attitude must change.

The Federal coastal zone program suffers not only from years of neglect but from institutional and substantive hurdles that ought to be addressed. Properly structured and administered, the program offers real promise in the national effort. Our main recommendation is that the links between water quality efforts and coastal management efforts must be strengthened. In keeping with this recommendation, Congress should emphasize the protection of estuarine and coastal water quality and coastal resources as one of the primary national coastal management objectives; currently, the Act is largely silent on water quality needs.

To build closer ties, NOAA, in cooperation with EPA, should conduct a systematic review of the links between state coastal programs and state water quality programs, particularly for nonpoint pollution sources. This review should include recommendations to each state and, where necessary, to Congress on needed changes in Federal statutes and state programs. Congress intended the report under section 316(c) of the CZMA to provide information on Federal programs which have an impact on the coastal zone. This report could be reconstructed to serve as the basis for systematic reorientation of Federal activity in the coastal zone and for implementation of more

effective coastal management programs.

Similarly, NOAA should encourage coastal states to include specific coastal water quality protection elements in their coastal zone management programs. State participation could be encouraged by using the funding mechanisms of section 306 or 306A of the Coastal Zone Management Act.

Coastal states might identify coastal watershed protection zones that are designed to provide specific focus on land use activities which occur outside the "coastal zone" but which "measurably" affect coastal water quality. Ideally, this should be done as part of a coastal water quality protection element of the state coastal program.

Moreover, many coastal states are using special designations to identify and protect waterbodies, or portions thereof, which merit specific attention. Because of their physical or biological characteristics, some waters may be particularly sensitive to nutrient loading. Other waters may provide essential support to living resources, such as nursery habitat. Action to identify waters with special sensitivity to pollution or which have special resource attributes can lead to more effective protection efforts. Special designations should be more fully explored at the state and local level, and more strongly encouraged by federal agencies.

A second, related course that should be pursued is to strengthen the role of local and state CZM planning and permitting in controlling surface runoff into coastal waters. Witness after witness testified to the crucial role that land use plays in the nonpoint source pollution problem, and to the very limited tools available at the Federal level to construct a proper response. The CZMA is potentially one of those tools, and every effort should be expended to develop its potential to assist local planning boards and other key decision makers.

In keeping with this, one major Federal role which is as yet unfulfilled is to provide information and technical advice to state and local authorities on the environmental implications of the full

range of planning decisions made daily by the towns and counties that rim our shorelines. One witness, a marine scientist who had served for years on a local planning board, forwarded a recommendation to the Subcommittees that addressed the point squarely, stating:

> Please provide Federal guidelines to our local governments such as the planning boards . . . because [they] are merrily proceeding approving subdivisions at an alarming rate. Most . . . have no responsibility or commitment whatsoever towards the marine environment, [nor understanding of] the ultimate contribution of sewage and street drainage from each one of those subdivisions.[14]

The Federal role ought to be comprised of two parts: developing the information needed by local planners on the one hand, and delivering it on the other. In both, and in particular the latter, the coastal zone program with an administrative apparatus at the state level might serve as a conduit for information to local planners, using the technical resources of EPA's water quality expertise and NOAA marine assessment programs as important sources of information.

Mention must be made of the constructive role that the consistency authorities of the CZM program should play. With an expanded focus of state CZM programs on water quality and habitat preservation, state authorities will be in a greatly improved position to insist that the Federal actions affecting water quality in the coastal zone are consistent with state efforts to improve that very same water quality.

Finally, Congress should develop mechanisms to encourage coastal states to develop and maintain a list of coastal priorities for land acquisitions that could be financed under the Land and Water Conservation Fund. This list could, in turn, become a national register of coastal acquisition priorities that would also guide the acquisition efforts of NOAA and the U.S. Fish and Wildlife Service. It could be subdivided appropriately to identify critical habitat priorities, public access priorities, and watershed protection priorities.

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[14] See testimony of George Hampson, Woods Hole Oceanographic Institution, before the Subcommittees on November 18, 1987 at page 24.

Nonpoint Sources

> Nonpoint runoff dominates as a source of suspended solids and also contributes half or more of total phosphorous, chromium, copper, lead, iron, and zinc. It is also the overwhelming contributor of fecal coliform bacteria in all areas of the country."
>
> --OTA: Wastes in Marine Environments

> Almost without exception, the message from the "frontline", where field-level NPS programs are actually implemented, is that the degree and nature of NPS pollution impacts is overpowering current control efforts. State and local officials are convinced of the severity of NPS pollution. But they do not have the resources--money, personnel and political backing--to do the job.
>
> --Robert Adler
> Natural Resources Defense Council, Inc.
> July 13, 1988

Many witnesses before the Subcommittees stressed the major role that nonpoint sources play in degrading coastal waters and the enormous difficulty of fashioning an effective set of controls for them.

Congress recently spoke to the question of nonpoint sources when it enacted section 319 of the Clean Water Act as part of the 1987 amendments, which establishes a national program for addressing nonpoint source pollution. Numerous witnesses, however, observed that section 319 does not provide a clear and workable means for ensuring that water quality is protected from nonpoint source pollution. In the opinion of one witness:

> The 1987 Water Quality Act's nonpoint provisions are not serious. At best, they are a throwback to the old, failed Section 208 program. They say, "states, go do something." That is not enough. The serious and necessary step with nonpoint pollution is cross compliance. Until the Congress is willing to condition farm and related subsidies on soil conservation and non-polluting practices, fertilizers, pesticides and the rest of the nonpoint menu will continue to produce dead zones, ad infinitum.[15]

The crisis facing our coastal areas may well justify strengthening the nonpoint program in coastal areas to require a state or local mechanism such as a permit, plan, or site-specific ordinance that clearly identifies the obligations of each source and to provide a way of measuring compliance; none now exists.

Congress might also confer the authority upon EPA for a Federal response when a coastal state fails to implement its nonpoint source control program. Such authority might range from the issuance of site-specific permits to substituting a Federal nonpoint source control program for the state program.

Moreover, Congress should clarify the Federal consistency provisions in section 319 of the CWA to strengthen the obligation of Federal agencies to ensure that their actions are consistent with state nonpoint source management programs. Moreover, as mentioned above, state CZM programs, because of their extensive experience with coastal land use issues, can and should play an important role in the implementation of state NPS management programs in coastal areas. The consistency requirements of CZMA section 307 and CWA section 319 should parallel one another to provide for the most effective use of both authorities.

The section 319 program is not only weak, but poor: the Administration has never asked for any money for it, and Congress has never spent any on it. Grants under sections 106 and 205 of the Clean Water Act have played critical roles in the development and operation of state water quality programs. Without similar support for nonpoint source control programs, the development of these programs will lag, with adverse consequences for coastal ecosystems nationwide.

The states were required to submit state NPS management plans in early August to EPA. EPA has extensive experience with review of state programs in the NPDES and Pretreatment programs. That experience, particularly relating to the approval of incomplete state pretreatment programs, suggests the importance of careful and critical

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15 See testimony of Oliver A. Houck, Professor of Law, Tulane University before the Subcommittees on September 28, 1988.

reviews of the initial state submissions. While the NPS program currently lacks the carrot (federal grants) and the stick (mandatory Federal programs in lieu of unsatisfactory state programs) that are available in the NPDES program, EPA should only approve wholly adequate state NPS programs.

States must focus much more on nonpoint sources when undertaking wasteload allocations to achieve applicable water quality standards. This will require improvements in water quality analysis capabilities and increased monitoring of nonpoint source pollution, including the use of biomonitoring.

Several witnesses urged Congress to authorize the imposition of development controls and termination of Federal subsidies for any areas that do not attain the objectives of nonpoint control plans or, alternatively, applicable water quality standards. Congress should undertake a careful examination of the types of Federal subsidies and direct undertakings that might be suspended in those coastal areas that fail to achieve sufficient progress in the efforts against nonpoint source controls or where there are significant and continuing violations of water quality requirements. The experience with the sanctions for nonattainment in the Clean Air Act may provide an important model.

The Food Security Act of 1985[16] achieved major progress in soil

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16 The Food Security Act of 1985 established several programs with soil and water conservation goals. These include the Conservation Reserve, the Conservation, Compliance, Sodbuster and Swampbuster programs. The first three programs are aimed at preserving highly erodible cropland, while Swampbuster is intended to discourage the conversion of wetlands to croplands. The Conservation Reserve program attempts to retire highly erodible cropland by offering annual rental payments under 10-year contracts. The Conservation Compliance program conditions eligibility for USDA program benefits on the implementation of conservation plans for highly erodible lands that continue to be planted with annually tilled crops. The Sodbuster program also conditions eligibility for USDA program benefits on implementation of a conservation plan, but applies only to highly erodible fields that were not used for crop production during 1981-85. The Swampbuster program seeks to discourage conversion of wetlands by tying eligibility for USDA

(Footnote continued)

conservation and water quality objectives. The agenda established by Congress in that hallmark legislation remains unfinished. The Department of Agriculture should actively assist farmers in establishing compliance programs for highly erodible land and should then put in place a credible enforcement program to ensure compliance. The Department should also give greater emphasis to water quality improvements, especially for coastal waters, by targeting the farmland that will produce the greatest water quality benefits during the remaining sign-ups for the Conservation Reserve.

Pretreatment

EPA should strengthen its program of assistance to and oversight of state pretreatment programs; to ensure effective implementation of the 1987 amendments to the Clean Water Act. Assistance to and oversight of state and local programs has always been an essential element of the pretreatment program; as the scope and complexity of these programs has grown over the last eleven years, the need for a strong Federal presence has grown accordingly.

The pretreatment program is designed to play an important role in keeping municipal discharges clear of toxics that would otherwise interfere with or pass through the treatment process into vulnerable receiving waters. Industries that discharge into municipal sewers are required through the pretreatment program to ensure that they remove toxics from their wastewater before discharging it. For coastal waters with large numbers of municipal sewer systems and industrial users that discharge toxics into those systems, the importance of effective pretreatment is heightened. Despite its importance, however, the pretreatment program has until lately been shunned by EPA; efforts to strengthen it should continue.

Although the 1977 CWA amendments call upon states to assume primary responsibility for both the NPDES and Pretreatment programs, fully one half of the states have not taken full responsibility for

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[16](continued)
benefits to preservation of wetlands. For a further discussion of these programs, see the record of the July, 1988 hearing.

the pretreatment program. While the reasons for this failure vary, it represents a serious obstacle to success for the program. EPA and the states in question need to work aggressively to fully implement the program.

In most instances EPA and states need to take a more aggressive posture in overseeing the pretreatment program. This is especially true for local pretreatment programs administered by municipal sewage authorities. Particularly important is the conduct of audits of local programs and correcting problems identified in those audits. Results from a series of EPA audits covering nearly a fifth of the 1,500 local programs indicate that a substantial majority exhibit serious shortcomings.

Compliance And Enforcement

> When you realize that we have over 300,000 sources, both point sources and indirect sources, that we try to control, I think the prospect of us taking enforcement actions against all of these facilities is unrealistic. We devote a lot of our time and attention to trying to generate voluntary compliance . . .
>
> --James Elder, Director
> Office of Water Enforcement
> and Permits
> U.S. EPA
> March 24, 1988

The success of the overall effort to protect coastal ecosystems from further decline will turn not on quick fixes or gimmickry, but rather on a sustained effort at every level. Adhering to basics will best promote success. Many of the recommendations above focus upon the need to ensure that the rules on what can and cannot be discharged into coastal waters are properly designed to protect those waters and their resources. But the finest standards are useless if they are ignored; to succeed, we need not only good standards but good compliance. Thus, Federal, state, and local authorities must strengthen their efforts to improve compliance with their water pollution controls, their land use regulations, and their agricultural best management practices.

Better compliance can be achieved through two complementary approaches. The first is, of course, the traditional enforcement action, where public authority is brought to bear through administrative or judicial action to ensure compliance. EPA, NOAA and other Federal authorities, state water pollution control authorities and coastal management agencies, and municipal sewerage agencies must all play a role in strengthening enforcement and improving compliance. In many instances, it will entail aggressive management of state NPDES programs and strong EPA oversight. In other instances, improved enforcement may well require a shifting of the compliance monitoring and enforcement burdens, such as those in the pretreatment program, which fall squarely on municipalities which may not be able to garner the technical resources or political will to do the job.

Proper enforcement remains one of the serious problems confronting pretreatment programs run by municipalities. As one witness testified:

> The results of [the EPA audit] are devastating. For example: Almost two-thirds of the 28 audited programs lacked adequate enforcement policies and procedure. Most of these had never taken any formal enforcement actions[,] although in at least 10 cases there had been serious or long-term violations. Few [municipal sewage treatment plants] have established policies for how and when to take enforcement action. In fact, most of the POTWs . . . expressed a reluctance to take any kind of formal action fearing it would constrain their relations with their users.[17]

Municipal managers need the technical assistance and monitoring capabilities to mount successful enforcement programs against their industrial users, and state and EPA oversight of local performance must be strengthened. Increasing use of the new administrative penalty authority in section 509 of the CWA by EPA will be one part of the effort to improve compliance. Another is the development of an overall coastal enforcement strategy, which might include the use of geographic initiatives that focus on specific estuaries or bays, possibly building upon the basin-wide approach advocated above.

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17 See testimony of Frances Dubrowski before Subcommittees on March 24, 1988, at page 19.

However, direct enforcement actions, crucial as they are, will not be sufficient. Improved compliance depends not only on strengthening the muscles of our enforcement arms but on increasing the costs of not complying. Therefore, a second approach is to require polluters who are not complying to pay more. People who discharge pollutants illegally should be held responsible for the consequences of their illegal discharges. Under current Federal law, they are responsible for the costs of complying and any additional civil and criminal penalties that might be assessed. Left unprotected are those who suffer direct economic losses -- a beachfront hotel owner, a fisherman -- from the illegal discharge.

Congress should impose civil liability upon those who violate our laws to protect coastal and estuarine areas from illegal pollution, similar to the liability endorsed by both the House and Senate over the last several Congresses in proposals to establish a comprehensive oil spill liability and compensation regime. Such liability will serve two purposes: first, it will ensure that innocent people have some means to seek compensation from those who have wronged them. Secondly, it will increase substantially the economic risks associated with noncompliance and may serve as an important additional incentive for voluntary compliance.

Monitoring And Information Transfer

I think it's been said that EPA's water program is data rich and information poor.

--Martha Prothro, Director
Office of Water Regulations
and Standards
U.S. EPA
May 25, 1988

It seems to me that you have an agency . . . -- NOAA -- which is doing some of the most exciting, razzle-dazzle stuff about the oceans imaginable. They have charts on every coastline. They can tell you where the fish are, where they spawn, where they live during various periods of their lives. They have amazing stuff, and they are doing one of the worst jobs in disseminating that information about our coastlines and estuaries imaginable.

--Michael Herz
Oceanic Society Trustee
November 18, 1987

One of the interesting things [the National Academy of Sciences] finds is that probably in excess of $20 million annually is being expended on monitoring requirements [in the Southern California Bight], yet, as a result . . . there is little ability to actually describe what is the condition of the water quality in the Southern California Bight.

William Eichbaum
Executive Office of
Environmental Affairs
Commonwealth of Massachusetts
March 24, 1988

Both EPA and NOAA have major responsibilities for monitoring and assessing the quality of coastal and estuarine waters. The performance of both agencies needs strengthening, for accurate and reliable monitoring serves as our eyes on the environmental health of our coastal waters.

Several of the witnesses appearing before the Subcommittees stressed the importance of improved monitoring, particularly ambient monitoring. As one witness described it:

> Very recently, because of research findings and a lot of thought that's been given to them by national and international agencies and organizations, many marine scientists now recognize that compliance monitoring, in and of itself, or the monitoring of single contaminants has relatively little usefulness in terms of managing habitat quality for living marine resources. It is essential that we begin to look at cumulative effects . . . In terms of future needs we really have to begin to look at monitoring as something that's not done incidental to a particular outfall, or even a local geographic area. Monitoring has to be done over proper time and space or it loses its efficacy. Monitoring and the development of criteria and standards have to be done with major objectives and goals of a program in mind. And in spite of several decades of activities, this really hasn't been done.[18]

EPA has recently completed a major critical review of its own monitoring and data programs which outlined numerous measures that it, and others, should pursue to improve performance. EPA should work to implement the recommendations of its own Surface Water Monitoring Study, especially those relating to improving monitoring capabilities in coastal and estuarine waters. The study identifies activities across a broad front that will be necessary to provide an effective national surface water monitoring program. For coastal waters, the changes should mean several things. One change must clearly be more ambient monitoring, while another is increased use of biological monitoring techniques to provide more complete overall measures of the health of these ecosystems. With support from the U.S. Fish and Wildlife Service and NOAA, EPA should work with state water quality agencies to develop biological monitoring tools to complement traditional chemical-specific monitoring approaches.

A third element will be closer cooperation among EPA, NOAA, and the coastal states in their monitoring and assessment work. This cooperation should also be reflected in better packaging and dissemination of the data that are produced from this monitoring and assessment. Expanded ambient monitoring will allow more accurate characterization of the conditions in our coastal areas and, if

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[18] See testimony of Dr. John Pearce, Deputy Center Director, National Marine Fisheries Service before Subcommittees on May 25, 1988 at page 150.

carried out consistently over a period of years, allow us to detect trends in coastal environmental quality. The ambient monitoring role that could be played by dischargers also needs to be examined fully.

The Federal agencies involved in collecting data on coastal environmental quality (e.g., EPA, NOAA, USGS) need to coordinate their efforts more effectively and ensure that those data are not redundant and are more readily available and useful to the environmental quality managers in the Federal agencies and in the coastal states. Clearly one of the best measures of success will be whether environmental quality managers at all levels can readily use the data that are contained in the several major computerized data systems maintained by EPA and NOAA. To the extent possible, NOAA and the other agencies should utilize the National Sea Grant Program and state coastal zone management programs as conduits for disseminating needed technical information to local and county levels.

One enormous source of monitoring activities and data are the state water quality programs and state and Federal discharge permitting programs. Through the regulatory requirements of each, private dischargers, municipalities, and others are often called upon to develop huge amounts of data about the local waters in which they operate. Much better use must be made of these efforts, for they consume enormous sums of money, both public and private, and because they represent irreplaceable opportunities. In this area in particular, EPA and its state counterparts must make far better use of the living resource expertise of NOAA and the U.S. Fish and Wildlife Service and their state counterparts to design and implement sensible, cooperative monitoring programs involving public and private participants and implemented through Federal and state regulatory programs. These cooperative programs should be organized on a geographic basis for key estuaries and coastal waterbodies.

Wetlands

The future of our living marine resources, to a great degree, is contingent upon habitat quality in the coastal zone.

Dr. John Pearce
Deputy Director
Northeast Fisheries Center
National Marine Fisheries Service
May 25, 1988

Several witnesses before the Subcommittee stressed the important role of coastal wetlands in preserving coastal water quality and fish and wildlife productivity, with one noting the national tragedy of wetlands losses in Louisiana and the other Gulf states. While the Subcommittees recognize that the overall subject of wetland protections encompasses issues that extend well beyond the scope of this report, they nonetheless believe that several areas of needed improvement deserve mention.[19]

The first relates to the Food Security Act, mentioned above. The current conservation provisions of the Food Security Act of 1985 seek to improve the national soil conservation program by targeting highly erodible soils for special protections. The provisions also protect wetlands that might otherwise be converted to crop production. In the 1987 revision of its national program for soil and water conservation, the Department of Agriculture (USDA) gives greater emphasis to water quality considerations, making protection of water quality from contamination by nonpoint sources its second priority after reduction of soil erosion.

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[19] A detailed review of current wetlands issues titled "Protecting America's Wetlands: An Action Agenda" was recently released by the Conservation Foundation. At the request of Congressman James Oberstar, Chairman of the House Public Works Subcommittee on Investigations and Oversight, the General Accounting Office recently reviewed the wetlands regulatory program under section 404 of the Clean Water Act (GAO/RCED-88-110, July, 1988). Both documents provide detailed reviews of current wetlands issues.

In its reauthorization of the Food Security Act during the 101st Congress, Congress should reaffirm the importance of water quality protection, including wetlands protection and restoration, by elevating the importance of water quality in the activities of USDA. In particular, Congress should consider expanding the Conservation Reserve program to place greater emphasis on improvements in water quality. Congress should also evaluate the length of the agreements under the Conservation Reserve Program to determine whether longer terms should be provided for land which is environmentally more significant, from either a water quality or a wetlands standpoint. Permanent easements can also play a significant role.

Among several key wetlands regulatory issues that Congress should review are, first, the development of wetlands criteria to be used to protect wetlands and the functions they perform in a healthy ecosystem. EPA should develop water quality criteria for protection of wetlands, in conjunction with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the U.S. Army Corps of Engineers. These criteria could be used in the permitting programs under sections 402 and 404 of the Clean Water Act, respectively, in state water quality standards programs, and in the state review of all federal permits under section 401 of the Act.

The second area for review relates to the need for a more clearly articulated wetlands protection goal. Congress and the Administration should review the wetlands protection goals of section 404 to resolve long-standing disputes over program objectives. This goal could be expressed in terms of preventing further losses and fostering restoration.

Further, the 404 program needs a better definition of what a wetland is. An effective wetlands protection program should rest on a uniform, consistent definition of what constitutes a wetland. Participants in the August, 1988 panel discussion from all involved Federal agencies cited the disagreements over definitions as a major problem in need of resolution. Noting that the disagreements mask larger policy differences, both should be resolved to increase the effectiveness of the program, the efficiency of the relationships

among the Federal agencies, and fairness to the public and the regulated community.

Finally, Congress should examine the need to broaden the coverage of wetlands regulatory programs. The 404 program is limited to issuing permits for dredged or fill materials. Many other activities destroy and alter wetlands. Congress should closely examine whether a properly designed federal wetlands program should reach these other activities, such as drainage, removal of soils, destruction of plant life, and placement of pilings and other obstructions in wetlands.

CONCLUSION

The evidence gathered during the 100th Congress by the Subcommittees documents and reinforces the scope and depth of the problems facing the coast. Reversing present trends and preserving the integrity and productivity of our coastal environments constitutes one of the major environmental challenges facing this nation. It is a challenge that will require the dedicated efforts of all coastal Americans and that will affect how we, as a nation, live, work and play in the coastal zone. Each sector of government, from the White House to the local planning board, must participate, as must the full range of public and private interests.

The Subcommittees have sought in this Report to profile the problems facing the coasts and to outline several recommendations which the Subcommittees believe merit further attention. Some will prove productive, some will require further work, and still others may miss the mark entirely.

The success of the entire effort will turn, in the end, not on the strength of any one idea but the commitment of the many who must join the effort. In Congress, the initiative extends far beyond the bounds of the two Subcommittees and will involve the several committees in both chambers with responsibilities for appropriations, for raising revenues, for public works generally, and for agriculture. Numerous Federal departments and agencies will be key participants, as will virtually every coastal state and county ringing the country. Ultimately, it is the public who will determine if the coastal America we leave behind is as rich and productive as that which we ourselves inherited.

APPENDICES

APPENDIX I

GLOSSARY OF TERMS

1. "Conventional pollutants" are a set of five pollutants listed in the Clean Water Act, including total suspended solids (TSS), biochemical oxygen demand (BOD) (a measure of the amount of oxygen consumed during degradation of wastes), pH (a measure of acidity), fecal coliform bacteria, and oil and grease.[20]

2. "Direct dischargers" are all facilities that discharge pollutants directly into receiving waters through pipelines.

3. "Indirect dischargers" are those dischargers (excluding households) who discharge into municipal sewage systems, which themselves then discharge directly into receiving waters.

4. "Nonconventional pollutants" are a catchall category of additional substances that may require regulation but that fall outside of the above two categories. They include nutrients such as nitrogen and phosphorus.

5. "Nonpoint sources" are sources of pollution that are not point sources, of which agricultural and urban runoff are the most prominent.

6. "NPDES permits" are permits issued under the National Pollutant Discharge Elimination System for the direct discharge of pollutants into waters of the United States. All direct dischargers are required to have NPDES permits.

7. "Numerical limits" and "narrative limits" refer to the manner in which a pollutant limitation is expressed. Numerical limits are expressed in specific numbers (i.e., "x" parts-per-million) whereas narrative limits are expressed in terms of objectives (i.e. no toxic discharges in amounts or rates that are toxic to marine organisms.)

8. "Point sources" are pipeline discharges, generally divided into industrial discharges and municipal discharges.

9. "POTWs" are municipal sewage treatment plants, or publicly owned treatment works.

10. "Pretreatment" refers to the system of controls on indirect industrial dischargers to ensure that their effluents do not (1) disrupt the operation of municipal treatment plants or (2) result in the eventual discharge into the receiving waters of untreated industrial wastes that would be subject to regulation if they were discharged directly into those waters.

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[20] Oil and grease is not actually listed in section 304 of the CWA, but was added to the category of conventional pollutants through rulemaking.

11. "Pretreatment standards" are the technology-based standards that apply to indirect dischargers. They are designed to achieve the same level of pollution reduction as BAT standards are for direct dischargers, taking into account the waste reductions achieved through the municipal wastewater treatment process itself.

12. "Technology-based standards" refers to the set of standards applicable to NPDES permittees and indirect dischargers based upon the ability of industries to achieve certain levels of pollutant reductions in their effluents. These technology-based standards are promulgated by industrial categories and currently require pollution reductions achievable by the use of the best available technology (BAT) determined on an industry wide basis.

13. "Toxic pollutants" or "priority pollutants" refer to a list of 126 toxic pollutants listed in the CWA as the toxic pollutants of primary concern, and include metals (e.g., lead and mercury) and organic chemicals.

14. "Water quality criteria" are the federal guidelines for pollutant concentrations in receiving waters that will achieve specific designated uses. States use these criteria to set water quality standards once they have designated their individual waters for a specific use.

15. "Water quality standards" are pollutant-specific standards for ambient water quality. They are to be distinguished from BAT standards, which are end-of-the-pipe standards. Water quality standards are established by states for specific water bodies based on what the state has identified as the "designated use" of the water body (e.g., fishable-swimmable or industrial).

APPENDIX II

OVERSIGHT HEARINGS ON COASTAL POLLUTION HELD BEFORE THE SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT 100TH CONGRESS

Date of Hearing	Subject	Serial No.
May 20, 1987	Oversight on the OTA Report "Wastes in the Marine Environment"	100-16
November 18, 1987	Introductory hearing on the scope and severity of coastal degradation	100-42
March 24 1988	Control of point source pollution in coastal waters	100-56
May 25, 1988	Coastal water quality and monitoring programs	100-56
June 27, 1988	Oversight hearing on Shellfish Diseases and H.R. 3969 - a bill to establish a program to provide financial assistance for research relating to oyster disease.	100-73
July 13, 1988	Control of nonpoint source pollution in coastal waters	100-77
August 11, 1988	Panel discussion on coastal wetlands protection	Will not be printed
September 6, 1988	Oversight on coastal pollution and the recent closure of coastal areas in New York, New Jersey, and southern New England. (At Jones Beach, N.Y.)	100-89
September 26, 1988	Coastal pollution and shellfish contamination	100-73
September 28, 1988	The role of coastal zone management in protecting coastal resources	100-93

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